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THE UNIVERSITY OF ALBERTA

INCIDENCE OF DEPRESSION AMONG SPECIAL EDUCATION STUDENTS IN GRADES 3 to 8

by

RONALD ANTHONY LIND

A THESIS
SUBMITTED TO THE FACULTY OF GRADUATE STUDIES
AND RESEARCH IN PARTIAL FULFILMENT OF THE
REQUIREMENTS FOR THE DEGREE OF
MASTER OF EDUCATION

in

SCHOOL PSYCHOLOGY

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY
EDMONTON, ALBERTA
FALL, 1988

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THE UNIVERSITY OF ALBERTA

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled "Incidence of Depression Among Special Education Students in Grades 3 to 8", submitted by Ronald Anthony Lind in partial fulfilment of the requirements for the degree of Master of Education in School Psychology.

Supervisor

Date 20 September 1985

ABSTRACT

In this study the author undertook to assess the incidence of childhood depression in mild (LD) to severely learning disabled (SLD) students and a control group of regular class students in grades 3 to 8. A second purpose was to examine the teacher's role in assessing students' behavior, in particular through the use of the Teacher Rating Scale (TRS) of the Behavior Rating Profile. The relationship of the TRS to depression was assessed. Finally, depressed and nondepressed students were compared on measures of academic achievement.

The Children's Depression Inventory (CDI) was administered to 56 LD students, 44 SLD students, and 224 control group students. Teachers completed the TRS for each student. Test scores on measures of academic achievement were obtained from cumulative records.

Results of the study indicated that from 7 to 21% of learning disabled students are highly at risk for depressive syndromes, compared to 13% in the control group. A higher percentage of girls than boys in each group had 'depressed scores'.

Teachers rated the behaviors of special education students differentially compared to control students. Girls were also rated significantly higher than boys.

The 30 behaviors of the TRS reduced to 5 factors accounting for 68.3% of the total variance. Four of these

factors might be expected to be theoretically related to depression. Results showed 3 factors to be significantly but modestly correlated with self-rated depression scores. Further analysis by correlation indicated that nine behaviors on the TRS were the most effective in predicting students' depression scores.

Implications for the school psychologist to screen for depression as opposed to other learning problems were discussed. Suggestions for further research were made.

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This thesis marks an important milestone in my personal and professional career. It is with joy and gratitude that I acknowledge those who assisted me along the way.

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CHAPTER I

INTRODUCTION

Background to the Study

The controversy over whether or not childhood depression as a clinical entity exists has abated somewhat in the past decade. This general acceptance of depression in children (Poznanski, Krahenbuhl, & Zrull, 1976, Cytryn, McKnew & Bunney, 1980; Tesiny & Lefkowitz, 1982; Reynolds, Anderson & Bartell, 1985; Epstein & Cullinan, 1986; Shanahan et al., 1987) rests at least in part on the assumption that there is a considerable overlap between the phenomenology of depression in adults and children.

The authors of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R; American Psychiatric Association, 1987) made the same assumption, then proceeded to list the corresponding operational criteria for depression in children on which most subsequent research on this topic has been based. In this respect it is ironic to note that in neither DSM-III nor DSM-III-R was childhood depression listed among the disorders usually first evident in infancy, childhood, or adolescence. However, the authors did note that if a child met the criteria for major depression, then the diagnosis should be made regardless of an individual's age.

Further compelling evidence for depression in children has come from studies investigating family history (Akiskal

& McKinney, 1975), genetic links (Mendlewicz & Rainer, 1977; Kashani et al., 1981), neuroendocrine functioning (Puig-Antich, Chambers, & Halpern, 1982; Puig-Antich, 1986), and pharmacologic responsivity (Woodside, Brownstone & Fisman, 1987).

Significant progress in the measurement of childhood depression has also followed from the assumption of largely overlapping symptoms for adults and children (Kovacs & Beck, 1977; Kovacs, 1983), as well as from the availability of generally accepted operational criteria (Cytryn, McKnew, & Bunney, 1980; Asarnow & Carlson, 1985). Kovacs and Beck justified the use of an adult depression rating scale as a model for a child self-rating scale precisely because they had noted in the literature an overlap of the salient features of adult and child depressive symptomatology (Kovacs, 1983).

The importance of standardized and reliable instruments for measuring childhood depression cannot be overstated. The need for an adequate measure exists not only in mental health treatment centres but also in school settings. Blackman (1983) validated the Children's Depression Inventory (CDI) against a normal school sample and found it to be a useful screening measure for childhood depression. A study by Paananen (1983) likewise supported the use of the CDI as a screening device. Limitations of the CDI have been discussed in the literature, but it still appears to be the best researched instrument available to measure depression

from a child's point of view (Saylor, Finch, Spirito, & Bennett, 1984a, 1984b).

As mental health professionals have become more interested in studying depression among children, population samples have not been confined to clinical settings but have increasingly included school samples as well. Study of depression in the school setting has allowed for the input of an important observer of childrens' behavior - the teacher.

Knowledge about the prevalance of a disorder is important in understanding it and in developing differential diagnostic and treatment strategies. Incidences of depression among school-aged children reported in the literature vary widely from 2% to 60%. Epstein and Cullinan (1986) noted that the incidence of depression in special education programs and among handicapped pupils is largely unknown and requires further research.

An investigation of the relationship between academic achievement and childhood depression has tended to show that lowered achievement is associated with depression in children (Paananen, 1983; Kashani et al., 1982; Livingston, 1985). However, there is also some evidence to the contrary (Brumback, Jackoway, & Weinberg, 1980). The relationship between achievement and depression is not entirely clear as yet, and which of the two is the possible cause or effect has yet to be established.

The suggestion of a relationship between a student's emotional/learning problems and depression is not a recent one (Agras, 1959). The relatively higher incidence of depression among learning disabled students has been suggested by Winter, Cole, and Wright (1983), and Stevenson and Romney (1984).

The possible confusion and mislabelling of children who have childhood depression, learning disabilities, and/or emotional disturbance is of concern for educators. Colbert, Newman, Ney, and Young (1982) found a depression incidence of 54% among 282 children admitted to a family psychiatry unit. Whereas 34.6% of the depressed students had been considered learning disabled by previous educational or psychometric reports, only 7.2% of the depressed students could be confirmed as learning disabled by the research team. The latter children were then shown to significantly improve their school learning as a result of treating the depression only, but without specific remedial education.

Introduction to the Problem

Teachers require an adequate knowledge about childhood depression including its prevalence among regular and special education students, and the characteristics of depressed children. Given such information, teachers will not only become better in assisting with screening and diagnosis, but will also be in a better position to become accountable for those students with learning problems whose primary illness is an affective disorder.

Educators are presently particularly concerned with meeting the needs of learning disabled and conduct disordered students. It appears that childhood depression can interact with both of these to create an even more complex learning problem. Thus educators may be required to take a greater role in screening and assisting in the treatment of disorders that hinder students from achieving their educational goals. The main purpose of this study was to provide information on the incidence of childhood depression in a special educational setting, and at the same time, to examine the incidence among regular class students.

A second purpose was to look at some possible screening instruments which might provide a first level of identification of students who are possibly at risk for childhood depression. Specifically, it was hypothesized that teachers, using a behavior rating scale, might assist in identifying those behaviors known to be related to childhood depression. Thirdly, achievement data were collected to test the hypothesis that depressed students are significantly lower on measures of achievement.

Delimitations of the Study

1. The same data were collected across grades 3 to 8, thus obscuring any possible differential effect of stage of development on depression.

2. Academic achievement data were based on group measures of achievement that were not consistently available

for all students. In some cases test scores were between three and four years old.

3. In the design of the study there was no attempt to control for socioeconomic status or intellectual level.

4. Teachers' ability to predict depression was based on an indirect approach of rating general behaviors rather than a direct rating of perceived depression in students.

Limitations of the Study

1. A low rate of return for parental consent slips among LD students (47.9%) resulting in a low participation rate limited the generalizability of results for this group.

2. Lack of uniform and current data on achievement measures did not permit this aspect of the study to be adequately addressed.

3. A volunteer sample was used, making the study subject to the limitations of volunteer research (Rosenthal & Rosnow, 1975).

Overview of the Study

In Chapter I the background to the study, an introduction to the problem, delimitations and limitations to the study were discussed. Chapter II provides a review of the pertinent literature including a definition of childhood depression, incidence, factors related to childhood depression, theoretical models of depression, developmental perspectives, self-rating of depression, and teacher rating of childrens' behavior. Research questions are stated at the end of Chapter II. The design and

procedures of the study are provided in Chapter III, followed by an analysis of the data and a description of the findings in Chapter IV. Chapter V is a discussion of the results, with implications for school psychologists and for future research.

CHAPTER II

REVIEW OF THE LITERATURE

This chapter will present the definition of childhood depression that is used and accepted in current research. Prevalence will be examined by reviewing the available studies. Factors that have repeatedly been shown to relate to childhood depression will next be presented, followed by a discussion of various theories and models which have been proposed to describe the causes and development of this disorder. The importance of developmental perspectives as they pertain to childhood depression will be briefly presented. Finally, the issues of self-rating methods of depression and teacher rating of student behavior will be reviewed.

Definition of Childhood Depression

There is general agreement that depressive symptoms can and do occur in infancy and childhood. When depression is conceptualized as a syndrome, this means more, however, than just sadness or dysphoric mood. It implies the regular co-occurrence of dysphoric mood with other symptoms such as affective changes, cognitive changes, motivational changes, and vegetative and psychomotor disturbances. For depression to be further delineated as a disorder implies that the depressive syndrome causes some degree of incapacity, and that there are typical clinical features, a natural history,

response to treatment, and possible biological correlates (Cantwell and Carlson, 1979).

Recent research in childhood depression has become increasingly empirical with its emphasis on diagnosis via operational criteria, standardized clinical assessment, and rigorous methodology (Kovacs et al., 1984). Most research in the past ten years has been based on the conceptualization of depression found in Research Diagnostic Criteria (Spitzer, Endicott & Robins, 1978) or the Diagnostic and Statistical Manual of Mental Disorders (DSM-III) criteria (American Psychiatric Association, 1980)

Criteria for major depressive syndrome as outlined by the DSM-III-R (American Psychiatric Association, 1987) are as follows:

A. At least five of the following symptoms have been present during the same two-week period and represent a change from previous functioning; at least one of the symptoms is either (1) depressed mood, or (2) loss of interest or pleasure.

1) depressed mood (or can be irritable mood in children and adolescents) most of the day, nearly every day, as indicated either by subjective account or observation by others

2) markedly diminished interest or pleasure in all, or almost all, activities most of the

day, nearly every day (as indicated either by subjective account or observation by others of apathy most of the time)

3) significant weight loss or weight gain when not dieting (e.g., more than 5% of body weight in a month), or decrease or increase in appetite nearly every day (in children, consider failure to make expected weight gains)

4) insomnia or hypersomnia nearly every day

5) psychomotor agitation or retardation nearly every day (observable by others, not merely subjective feelings of restlessness or being slowed down)

6) fatigue or loss of energy nearly every day

7) feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day (not merely self-reproach or guilt about being sick)

8) diminished ability to think or concentrate, or indecisiveness, nearly every day (either by subjective account or as observed by others)

9) recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide

B. 1) It cannot be established that an organic factor initiated and maintained the disturbance

2) The disturbance is not a normal reaction to the death of a loved one (Uncomplicated Bereavement) p. 222-223

Authors of the DSM-III criteria assume that the clinical picture of depression in children can closely resemble that seen in adults. This notion appears to be quite widely accepted (Quay, Routh & Shapiro, 1987; Herschberg, Carlson, Cantwell, & Strober, 1982; Kashani et al., 1981; Cytrun & McKnew, 1980; Leon, Kendall, & Garber 1980; Kovacs & Beck, 1977).

The CDI (Kovacs, 1979), a 27-item, self-report, symptom-oriented scale was intended by Kovacs to quantify a range of depressive symptoms such as disturbed mood, hedonic capacity, self-evaluation, vegatative functions, and interpersonal behaviors (Kovacs, 1985). These symptoms are presumed to overlap significantly with the adult picture of depression, and this comparability may help to explain the widespread use and acceptance of the CDI as a measure of childhood depression.

The CDI was used in this study as the chief measure to identify children who appeared at-risk for depression.

Incidence of Childhood Depression

The recorded incidences of childhood depression reported in the literature showed a large discrepancy. Various researchers have noted the possible reasons for this which include: subjective measures and diagnoses of depression, differences in the age, sex, and characteristics

of the samples studies (Kashani & Simonds, 1979; Kashani et al., 1983; Epstein & Cullinan, 1986).

Kashani et al. (1981) reviewed eleven studies concerned with epidemiology of depression in children between 1970 and 1979 and reported findings as follows.

1.4/1,000 to 1.9%	general populations (including children)
13.7% to 58%	Educational diagnostic or school psychiatric centres (children)
1.8% to 59%	Psychiatric inpatients
40%	Neurological ward
25%	Residential nurseries (children)

Kashani and Simonds (1979) studied a group of nonpsychiatric (N=103) children, aged 7-12 years. Using an interview and DSM-III criteria as the basis for a diagnosis of depression as a syndrome, they found an incidence of 1.9%. When the criterion was focused on sadness as a distinct affect, the incidence reported was 17.4%. The latter group also showed significantly more somatic complaints, overactivity and restlessness, fighting, low self-esteem, and school refusal. The authors felt that this group could be manifesting a sub-clinical or early adult form of depression.

In another study by Kashani et al. (1983) 641 nine year old New Zealand children were sampled. Using a child's

questionnaire and a semistructured diagnostic interview based on Research Diagnostic Criteria and DSM-III criteria, a diagnosis of major or minor depressive disorder was made. The authors reported an incidence of 1.8% and 2.5% for each respective disorder.

Mullins, Siegel, and Hodges (1984) sampled 134 fourth, fifth, and sixth graders in a midwestern U.S. city. Using the CDI with a cutoff score of 19, the authors cited an incidence of 12.6% depression.

Lefkowitz and Tesiny (1985) also assessed the prevalence of severe depression in a large sample of prepubertal children in grades 3 to 5. They administered the Peer Nomination Inventory of Depression (PNID), a modified version of the CDI, as well as an individually administered interview with mothers. Only the PNID was used to determine the prevalence of severe depression. An overall prevalence of 5.2% was found, with girls showing a somewhat higher (although not significant) rate of 5.6% as compared with 4.8% for boys.

An exploratory study by Paananen and Janzen (1986) undertook to determine the incidence of depression in late childhood and to describe the characteristics of depressed children. Incidence varied as a function of the three concurrent measures used for assessing depression. The Children's Depression Scale (Lang & Tisher, 1978) identified 4.10% of students while the Children's Depression Inventory selected 9.18% of a sample of 610 regular elementary

students. The third measure was a parent questionnaire consisting of children's behaviors into which the DSM-III criteria for depression were embedded. By this more stringent measure 2.13% of the students were identified as depressed.

For public school adolescents in New York State between the ages of 14 and 18 the incidence of self-reported depressed mood was 18% (Kandel & Davies, 1982).

In summary, it can be seen that in non-psychiatric samples of children there is a consistent incidence ranging from 1.8% to 12.6% when a depressive syndrome or disorder is specified. When depressive symptomatology is the criteria, incidence was found as high as 18%.

Factors Related to Childhood Depression

The early literature on childhood depression was concerned about its existence as a legitimate clinical entity and its definition in terms of operational criteria. This was a necessary requisite for standardized clinical assessment and establishment of a common language for mental health professionals and researchers, and to allow for comparability and replication of empirical studies. More recently continued attention has been given to the correlates of depression. An overview of the major findings pertinent to this study will follow.

Self-esteem

Cicchetti and Schneider-Rosen (1986), among others, have noted that the loss of self-esteem is a central

feature in the depressive syndrome as postulated by theorists of various orientations.

In the study by Paananen and Janzen (1986) which looked at characteristics of depression in elementary school students, depressed children were found to have significantly lower self-esteem scores than nondepressed children as measured by the Culture-Free Self-Esteem Inventory for Children (Battle, 1981). Although three concurrent measures of depression were used, the lowered self-esteem was consistent across all measures.

In a sample of psychiatrically disturbed children, those children who met the DSM-III criteria for depressive disorder according to semistructured interviews were also found to have significantly more frequent specific depressive symptoms of low self-esteem, dysphoric mood, anhedonia, and suicidal ideation (Herschberg, Carlson, Cantwell, & Strober, 1982). Results following the interview also indicated overall higher ratings of depression - including significantly higher scores on the Children's Depression Inventory for children with affective disorder. The authors concluded that childhood depressive disorders and adult affective disorders can closely resemble one another, especially when contrasted with adult anxiety disorders.

Kazdin et al. (1983) studied a group of 66 psychiatrically disturbed inpatient children to ascertain the relationship among hopelessness, depression, and

suicidal intent. Independent DSM-III diagnoses were made before children were administered the Self-Esteem Inventory, several depression measures, and the Hopelessness Scale for Children (Beck et al., 1974). Results indicated that children who scored high on the hopelessness scale showed significantly more severe depression and lower self-esteem than children who scored low on the scale. An important conclusion by the authors relative to the study of childhood depression was the suggestion that negative expectations towards oneself and the future can be assessed in children and are related both to depression and suicidal intent.

Brown, Harris, and Bifulco (1986) expanded on the concept of hopelessness, reasoning that it is not a sufficient condition to bring about clinical depression. They contend that

> before the core psychological and physical symptoms of depression are set in train it is necessary for such feelings to generalize - an idea closely linked to Beck's discussion of a cognitive triad in depressed patients of hopelessness about circumstances, one's self and the future (Beck, 1967). p. 259

Generalization, it is thought, is aided by the negative thought processes found in depression. The vulnerability of these cognitive thought processes lies in the relative inaccessibility of positive memories which mitigate against the pessimistic generalizations being formulated. Thus in

persons with low feelings of self-esteem there may be a tendency to react to frustration with a sense of helplessness (Brown, Harris, & Bifulco, 1986).

In conclusion, the literature suggests a strong and consistent relationship between low self-esteem and depression, and furthermore, this relationship supports the theoretical models that postulate loss of self-esteem as a possible cause of depression (Paananen & Janzen, 1986).

Locus of Control

Measures of locus of control provide an assessment of whether the child perceives reinforcement of his or her behavior to be controlled by outside factors or is within the sphere of his influence.

Mullins, Siegel & Hodges (1984) examined the relationship between a number of cognitive problem-solving and life event variables and depressive symptoms. One of their findings was a strong positive relationship between level of depressive symptomatology and locus of control ($r=.57$, $p<.001$).

Paananen (1983) found depressed children to be more external in their locus of control than nondepressed children. Her finding was consistent across the three measures she used to identify depression. She concluded that this provided some support for the learned helplessness model of depression (Seligman, 1975).

Her findings were found to be consistent with earlier ones by Lefkowitz and Tesiny (1980) and Moyal (1977) who

also showed that children scoring high on depressive symptoms tended to view events in their environment as externally controlled.

Intrafamilial Factors

In an article addressed primarily to nurses, Rhyne et al., (1986) listed the following intrafamilial stressors as precursors to possible childhood depression: divorce, death, abandonment/separation, impaired parent-child relationship, distancing by parents, parental mental illness, and physical disabilities. Poznanski, Krahenbuhl and Zrull (1976) conducted one of the earliest longitudinal studies on depression in childhood. Although the sample of 10 children who were reevaluated after a period of approximately 6 1/2 years was quite small, some fascinating findings emerged. Of particular interest at that time was the finding that 50% of the sample were still clinically depressed and their overt behaviors more closely resembled the adult depressive than they had in childhood. A further significant finding was the positive correlation of parental deprivation and rejection with continuing depression. On the other hand, neither broken homes nor parental loss were predictive of later depression in this study.

Cole and Rehm (1986) examined family interaction patterns that might contribute to the etiology or maintenance of depression in children. They found that mothers of depressed as well as nonclinic children set very high criteria for rewarding their children, compared to

mothers of clinic/nondepressed children. However, mothers of depressed children rewarded their depressed children at significantly lower rates than the other three groups. While the data could not establish whether less positive reinforcement was either a cause, effect, or correlate of the child's depression, it was concluded that "failure to maintain a high overall rate of positive reinforcement while setting high standards may be the hallmark of families with depressed children." p. 311.

Lefkowitz and Tesiny (1985) gathered data to investigate a set of variables believed to be theoretically associated with the construct of childhood depression. Their findings suggested that, among other things, depression was significantly related to rejection and certain aspects of mothers' personality. The results were considered to cross-validate and extend the findings of earlier research (Lefkowitz & Tesiny, 1980) which had delineated the relationship between depression and achievement, low self-esteem, external locus of control, school absences, and low family income.

In a longitudinal study Billings and Moos (1985) examined parental depression and the status of children at a 1-year follow-up. Comparisons were made among three groups of parents: (a) previously depressed parents whose symptoms had remitted, (b) previously depressed parents who continued as such, and (c) well-matched control families. Both children and the families of parents who continued to be

depressed were found to function more poorly than controls. Parents whose depression had remitted and whose family social environments also appeared improved, had children who were still functioning more poorly than children of controls. The authors used a social-environmental framework to posit that parents' mental health status as well as family stressors and resources appear to be concurrently and predictively related to their children's health. An earlier study by the same authors (Billings & Moos, 1983) had reported that families with depressed parents showed higher levels of social stressors, less cohesion, and more disorganized family environments. Interestingly, it was also noted that a small number of depressed-parent families with low stress and high support had children who appeared to show an invulnerability to disturbance.

Kandel and Davies (1982) examined the epidemiology and correlates of depressive mood in a sample of public high school students and found that the lowest levels of adolescent depressive mood correlated with high levels of attachment both to parents and to peers.

The study of affective disorders has established quite conclusively that these disorders do run in families (Cantwell & Carlson, 1979). An earlier study of this issue by Rutter (1966) found that parents with affective disorder had children who manifested a higher rate of psychiatric disorder than children of control parents, but not

necessarily higher than children whose parents had other psychiatric disorders.

A study by Kovacs (1984) appears to contradict some of the correlates of depression discussed earlier in this section. She studied three discreet depressive syndromes (according to DSM-III criteria) in the context of a prospective, longitudinal, and controlled nosologic study of two school-aged cohorts. For example, her early findings did not support the notion that interpersonal trauma and rejection are specific to the etiology of depressive syndromes. Likewise her data appeared to refute the findings of others which suggested that social and environmental disadvantages and multiple disruptions in the parent-child relationship may be specific predisposing factors for childhood depression. Results also showed that the depressed sample did not differ significantly from the comparison group in terms of prevalence of low socioeconomic status. The finding of significantly more girls among the depressed sample was noted in this study. However, Kovacs concluded that whatever factor may be responsible for this sex differential was not yet clear.

Emde, Harmon, and Good (1986) proposed a transactional approach for understanding depressive feelings of the child and significant others around him. It was felt that the intersubjective feelings between child and significant other mutually influence each other in significant ways. They pointed to the prominence of depression in a parent in the

childhood depression literature and cited Cyrtyn and McKnew (1980) who stated that depression in a parent is "the most prevalent etiological factor" in episodic affective disorders. It was felt that the markedly high incidence of childhood depression in the offspring of parents with major affective disorder (bipolar or unipolar) can be well accounted for by the transactional approach. The authors argued the point further by stating that "such a high incidence may reflect more than what would be expected from a simple genetic determination for this disorder ... (thus) more specific effects through parental transactions are also a distinct possibility." p. 137.

Preliminary data from the offspring studies of Cytryn, McKnew, Zahn-Waxler, and Gershon (1986) suggested several trends. By 12 months of age the infant of manic-depressive parents showed disturbances in attachment behavior and dysregulation of affect. Other behavior manifestations included disturbed interpersonal relations marked by conflict, instability, dissatisfaction, and difficulty in handling emotions - especially sadness and anger. The authors asserted that by age 5 or 6 and using modified adult depression measures and standard adult diagnostic criteria one may begin to make diagnoses of mood disorders.

A study by Paterson, Mullins, and Ridley-Johnson (1985) looked at the broader social context beyond the family. Based on the presuppositions that depressed children tend to perceive themselves as socially rejected and unlikable, and

that they have had recent increases in life stresses, the authors assessed self-reported aspects of peer reactions to a depressed or nondepressed child who had or had not experienced recent high life stress. Results strongly supported the contention that a depressed peer is liked less, and is found as less attractive, as engaging in fewer positive current and future behaviors, and as being in great need for counselling help than a nondepressed peer. In this study depression and stress were found to interact in such a way that the child shown on film to be depressed without depiction of external causes was rated as unlikable and unattractive, whereas the depressed child with obvious high life stress was rated as more likable and attractive than either of the nondepressed children. These findings could have implications for the initiation or perpetuation of childhood depression in school or other social settings.

A review of the literature indicated a somewhat unclear picture of the intrafamilial factors that may be related to the entity of childhood depression. The need for further research in this area was most evident.

Academic Achievement

In two studies from the early 1980's (Leon, Kendall, and Garber, 1980; Herschberg, Carlson, Cantwell, and Strober, 1982) the association between learning problems and childhood depression was posited. Learning problems and poor school performance were assessed by psychiatric interview of the parent and child in each respective case.

However, it is not at all clear what was meant by "learning problem" and no specific, objective measure of academic achievement was established.

Paananen and Janzen (1986) also found that children who were depressed according to parents or the Children's Depression Inventory had significantly more school related problems. When childrens' academic performance was assessed by specific measures of reading decoding and math tests, those who had been identified as depressed from parent information scored significantly lower on these two measures. Children identified as depressed by self-report measures scored significantly lower on all academic measures (which included decoding, comprehension and math tests) compared to nondepressed children. These findings are confounded, however, by the fact that children who were identified by self-report measures also had significantly lower verbal I.Q. scores. Interpretation of the results was made difficult by the fact that ability scores were taken from group administered tests done within the school system. Both cognitive ability and achievement rating might have been affected by depression. Furthermore, generalizations from these particular findings are at best tenuous because ability scores were not available for all students, and achievement scores were taken from only one sampling of a student's work.

Several studies have examined the relationship of depression to performance on cognitive tasks. Two of these

(McGee et al., 1986; Kashani et al., 1983) did not support this hypothesis. In addition to the findings regarding cognitive performance, Kashani's group also found that currently depressed children did not differ significantly from nondepressed children on measures of verbal comprehension and expression, reading, spelling, or motor development. However, both Kashani et al. (1983) and McGee et al. (1986) found that depressed children had a significantly poorer self-perception of scholastic ability. Both studies used the Students' Perception of Ability Scale (Boersma & Chapman, 1979). This may be of particular theoretical and clinical interest because as Kashani noted, this may suggest "a direct relationship between current mood and negative self-view" p. 1222. McGee et al., (1986) concluded that depressive symptomatology in children may be associated more with distortions of self-perception of ability and performance rather than with task performance per se.

Lefkowitz and Tesiny (1985) added to the issue of performance on cognitive and achievement measures by siding with those who hold to an association between poor academic achievement and depressive symptoms. Specifically, they found that children of both sexes who scored in the lower quartile of reading and I.Q. were at greater risk for severe depression than were those scoring in the upper quartile for these variables. With respect to reading achievement, rates for severe depression in boys showed a consistent decline as

reading scores increased. The same pattern was evident for girls with the exception of the upper quartile where an increase in the rate of depressive symptoms was noted.

Data on the association between academic achievement and childhood depression were suggestive of a trend toward lower academic achievement and lower self-perception of ability among depressed children.

Conduct Disorder, Learning Disabilities, and Childhood Depression

Leon, Kendall, and Garber (1980) studied the behavior problems associated with depression in elementary school children. Parents rated their children to have significantly more conduct problems, anxiety, impulsive hyperactivity, learning problems, and psychosomatic problems at home. Teachers rated the depressed children as showing more inattention - passivity at school than did their nondepressed peers.

Rutter (1986) seemed to recognize a striking overlap between conduct disorder and depression. This was also graphically evident in Puig-Antich's (1982) study of major depression and conduct disorder in prepubertal boys. He found that approximately 1/3 of the boys with major depression also fit DSM-III criteria for conduct disorder. Moreover, following a course of pharmacotherapy (imipramine), successful outcome of the depression in the "mixed" disorder group (i.e. having major depression and conduct disorder, was followed by a decrement of conduct

disorder behaviors in 11 out of 13 boys. This finding was taken to imply that conduct disorder may arise as a result of depressive syndromes in children.

Jacobsen, Lahey, and Strauss (1983) investigated the correlates of depressed mood in a sample of normal elementary school children. From their correlation matrix of variables they concluded that a different pattern could be seen for boys than for girls. For boys there were moderate to strong correlations of the depression measures with conduct problems and unpopularity. For girls depressed mood was associated with behavior problems, unpopularity, and somatic complaints.

Blackman (1983) found a significant correlation between ratings of depression (Children's Depression Inventory and psychiatric diagnosis) and the anti-social factor (stealing from home, school, stores, etc., and getting into trouble with the police) on the Connor's Parents Symptom Questionnaire (CPSQ). A similar correlation was not found between the conduct-disorder factor on the CPSQ (aggressiveness, poor impulse control, truancy, peer difficulties) and ratings of depression. She suggested the possible need to differentiate between conduct disorder and anti-social behavior, since only the latter appeared to be associated with depression.

Woodside, Brownstone, and Fisman (1987) studied the utility of the Children's Depression Inventory (CDI) and the Dexamethasone Suppression Test (DST) in children with major

affective disorders and adjustment disorders. The DST which has been found useful in verifying the diagnosis of depression in adults showed similarly significant rates of non-suppression in children with major depression and adjustment disorder. A second key finding was that the CDI scores for children with major depression and with conduct disorders were both elevated. Thirdly it was found that children with a diagnosed conduct disorder, and who also had the highest scores on the CDI, had a rate of non-suppression that was not greater than expected. This would appear to suggest that the CDI measures more than simply depression, and that depression as measured by the CDI is a multifactorial entity.

A study by Brumback (1979) is relevant for the present investigation. In studying the incidence of learning or behavior disorders referred to a general office practice, it was found that 39% of the children with learning disabilities also showed depression.

Colbert, Newman, Nay, and Young (1982) examined 282 psychiatric referrals and found that 54% of the children met DSM-III criteria for depression. 73% of the depressed sample were in regular classes upon referral; the other 27% were in special classes ranging from programs for mentally retarded and learning disabled to autistic children. The vast majority of these children (71%) were underachieving one or more years below grade level in one or more academic areas in relation to expectations based on I.Q. and grade

placement. Although more than one third of the children had been considered as learning disabled according to previous psychoeducational data, only 7.2% could be so diagnosed following assessment by the research team. While a large number of children were achieving poorly in school, the authors felt that this was not attributable to specific learning disabilities. Thus it was concluded that depression resulted in poor school performance in children with adequate mental abilities and who did not have specific learning disabilities. These data have implications for the accurate diagnosis of learning disabilities and childhood depression before applying the appropriate intervention.

From the available evidence it appears that low self esteem is strongly correlated with depression. Depressed children have also been shown to consistently demonstrate an external locus of control. While intrafamilial factors in depression are far from clearcut there is some support for an association with parental deprivation and rejection, history of affective illness, certain aspects of mothers' personality, disturbed interpersonal relations, and family stressors. While various other factors including chronic physical illness or handicap are also associated with depression (Milavic, 1985), they do not help to make clear the picture of which factors are germane in the etiology and course of childhood depression. Results on the effects of depression on cognitive functioning, academic achievement, and self-perception of ability were equivocal, although the

adverse effects of depression on achievement and negative self-perception have generally been demonstrated. Depression has consistently been linked with conduct disorder - especially anti-social behavior. The incidence of depression appears to be higher in special education populations, but there may be a tendency to overdiagnose learning disabilities at the expense of undetected childhood depression.

Theoretical Models and Childhood Depression

It has been noted in the literature that prior to the 1980's, most of the research on diagnostic criteria and classification systems for childhood depression was based on observable signs and symptoms as opposed to being linked to and extended from a conceptual model (Kashani et al., 1981). In the more extensive adult literature on depression the major conceptual models include the psychoanalytic model, behavioral reinforcement model, learned helplessness model, cognitive distortion model, life stress model, sociological orientation, and a biological orientation including the genetic model and the biochemical model. How we conceptualize the entity - childhood depression - , and how we interpret data on the subject will be shaped by our presuppositions and belief system about that subject. Thus the model or models that we may adopt will reflect these underlying biases. Following is a brief overview of the above-mentioned models as these have been applied to childhood depression.

Psychological Orientations

Psychoanalytic Model

The original classic psychoanalytic position on depression may be found in the Abraham-Freud model (Akiskal & McKinney, 1975). In this view depression is seen as the inward turning of the aggressive instinct. This self - directed hostility is apparently triggered by the loss of an ambivalently loved object. In depression it was thought that anger toward the "lost object" led to strong feelings of guilt and self deprecation. In Abraham's formulation the factors which predisposed one to later depression lay in the unresolved problems during early psychosexual development.

Freud enlarged on Abraham's position in his paper entitled "Mourning and Melancholia", first published in 1917. Mourning and depression were considered as similar processes, but mourning was considered a healthy reaction. The dynamics of his theory lay in the hypothetical constructs of the "id", "ego" and "superego" and the infant's struggle against his primitive impulses to gain control over them. A rigid and harsh superego was the prerequisite for depression (Freedman and Kaplan, 1975).

Rie (1966) in his survey of the literature on depression in childhood concluded that children before the end of the latency years are probably incapable of a fully differentiated expression of despair and hopelessness which were considered necessary antecedents for depression. Thus

from the psychoanalytic framework, depression in childhood was considered psychodynamically impossible.

The major criticism directed toward psychoanalytic theory is that its hypotheses cannot be empirically tested. For example, the constructs of superego or repressed anger appear impossible to quantify and verify so that they can be empirically investigated.

Behavioral Reinforcement Theories

Depression in behavioral terms would imply a cluster of observable behaviors. The behaviorist then studies depression by systematically analyzing observable depressive behaviors, and by exploring their antecedents and precipitants in relation to the individual and his surroundings.

Wolpe (1971) has theorized that chronic frustration in a person's life results in chronic anxiety with the result that one cannot achieve anxiety-reduction with one's usual behavioral repertoire. In such a framework, the maladaptive depressive syndrome which develops would be characterized by passivity and hopelessness.

Ferster (1974) posited that depressive behavior developed as a result of insufficient reinforcement. In his view an individual is unable to maintain an adequate level of adaptive behavior when he does not obtain sufficient positive reinforcement from his environment. When adaptive behaviors are not reinforced they gradually give way to withdrawal, isolation, and self-doubting which result in a

depressive syndrome. In such a conceptualization, environmental determinants can be identified which help to explain an individual's inability to elicit more positive and rewarding behaviors. For example, in a case of parental divorce or separation, the negativity of the situation for the child may preclude his generating behaviors that are positively reinforced; or in multiple school changes a child may be unable to learn the necessary responses in a new and strange environment, with the resultant outcome of depression in both these situations.

The behavioral reinforcement model described by Lewinsohn et al. (cited in Kashani et al., 1981) is based on the assumption that depressive behaviors and feelings are elicited by a low rate of response - contingent positive reinforcement. Studies by these authors have suggested that for depressed persons experiencing a low rate of positive reinforcement, such persons (1) elicit fewer behaviors from other people, (2) they receive less positive reinforcement than nondepressed individuals, (3) they possess fewer social skills, and that this is related to the amount and type of activities that a depressed individual engages in. When the social environment may then provide sympathy and support for the depressed person, his behavior is inadvertantly reinforced and maintained. McLean (cited in Kashani et al., 1981) highlighted the interpersonal disturbances within this model. He held the view that depression results from the

loss of the ability to effectively control one's interpersonal environment.

Behavioral models have the advantage that they can be effectively operationalized and experimentally tested. For example, avoidance behaviors or the reduction of positively reinforced responses may be examined even in the youngest child (Paananen, 1983). Mild forms of depression have been successfully treated by behavioral strategies such as systematic densensitization, or through assertiveness training to countercondition anxiety (Akiskal & McKinney, 1975). For children who suffer from significant symptomatology but not a full-blown syndrome of depression such techniques may be just what is called for.

Learned Helplessness Model

The concept of "learned helplessness" was accidently discovered by Seligman and his colleagues (in Akiskal & McKinney, 1975) while testing a learning theory that involved administering inescapable electric shock to dogs. In phase one of the experiment a dog was strapped into a harness so that he could not avoid the shock administered. In the second phase he was unharnessed and then administered the shock. An unharnessed animal not previously shocked would automatically jump the barrier that separated the electrified grid from the nonelectrified section. The finding that when dogs were exposed to multiple sessions of painful stimuli in situations where escape was impossible, and then gave up and helplessly endured the shock even when

escape was possible, has been generalized to human depression.

Learned helplessness is related to depression insofar as an individual has learned that there is no relationship between his responses and the rewards he receives from the environment. A central idea for Seligman was the notion of helplessness, and the feeling of loss of control over the environment which may be seen in depressed individuals.

The observation that children (particularly in a classroom setting) can learn a helpless stance when faced with prolonged failure (Dweck, cited in Kashani et al., 1981) may make this a particularly useful model for research with children.

Cognitive Distortion Model

The cognitive approach emphasizes the role that disturbances in thinking play in determining emotional states (Beck, in Akiskal & McKinney, 1975). Beck (1967) theorized "that the way an individual structures his experience determines his mood" (p. 24). In Beck's model of depression negative expectations are posited to be at the root of depressive mood states. He also theorized that hopelessness and helplessness are central features of human depression, and which constitute a "cognitive triad" of negative conception of the self, negative interpretations of one's experiences, and a negative view of the future. Cognitive distortions are believed to originate in early negative life experiences. Through a conditioning or

sensitization process these eventually result in a tendency to overreact to events in a way that exaggerates the negative aspects of life.

Arieti and Bemporad (1978) postulated that "the problems of the depressive can be understood as the perpetuation of an inaccurate mode of cognitively processing experience that was formulated in childhood and crystallized in adult life" (p. 423). Self-concept is central in this scheme, and in depressed persons is believed to be based on others' expectations in a dependent relationship rather than to one's own internal reality. Such a conception stresses the reality that if an individual thinks he is rejected, then he will react emotionally and cognitively as if he really is rejected.

Based on cognitive theory, Kovacs and Beck (1974) posited that since the same mechanisms are at work in both children and adults the respective depressive syndromes of each would have a great deal of overlap. This thinking led to the development of the Children's Depression Inventory - which is the instrument this study is using to describe the constellation of depressive symptoms in children.

Kovacs and Beck (1977) have suggested that the cognitive distortion theory may be especially useful in research with children. Because of the potential to integrate it with theories of cognitive development (such as Piaget's), this offers the potential of "an integrated approach toward understanding the psychology of childhood

depression, as well as outlining some of its unique properties" (p. 23). Kashani et al. (1981) indicated that the incidence of low self-esteem and poor body image in sad children would suggest that the cognitive distortion model might be effectively applied to research with children.

Life Stress Model

The life stress model (Kashani et al., 1981) presupposes that reactive depression and perhaps other types of depression as well are precipitated by life stresses or environmental changes that necessitate readjustment. A life stress checklist has been developed for adults (Holmes & Rahe, 1967). This checklist has been modified for use with children (Coddington, 1972). Studies of depressed adults have found significantly greater numbers of stressful life events than among control patients (Paykel et al., 1969; Crook & Raskin, 1975). Kashani et al. (1981) have intimated that a life stress model would be appropriate for childhood depression, and that the focus of stressful events might be on marital discord and family psychopathology. It is quite likely that stressful events for children might differ from age to age, and certainly from those of adults.

Sociological Orientation

Sociological models

From a sociologist's viewpoint depression is seen as the product of a social structure which thwarts individuals with the roles it casts, for example, middle-class, middle-aged housewives, from control over their destiny (Bart, in

Akistal & McKinney, 1975). The mechanism believed to be the precipitant to depression is the loss of role status. The function of the ego and self-esteem are also central in this model since a breakdown or undermining of self-esteem caused by a loss of power, status, role, identity, values, or purpose for existence could also precipitate a depression. Kashani et al. (1981) pointed out that while the sociological model of depression has been used to study adolescents (Klerman, 1976), it has not been emphasized in the childhood literature. However, this model appears to have relevance for younger children who may lose role status when a baby is born and attention must be shared among siblings, or when a student moves and is no longer the top student/best athlete in his class.

Biological Orientation

Genetic Model

A major breakthrough in the classification of primary affective illness came from family studies in which it was observed that families with mania had high genetic loading for affective illness in two successive generations - with virtually no such association in families without mania (Akiskal & McKinney, 1975). Subsequent studies have confirmed the validity and utility of this finding. Besides the fact that it argued strongly for a genetic link to bipolar disorder it also had implications for accurate diagnosis and treatment. For example, it has been found that bipolar affective illness tends to follow a severe

course, accompanied by higher rates of suicide, but also by a superior response rate to lithium carbonate (Mendlewicz et al., in Akiskal & McKinney, 1975).

Support for the role of genetics in the etiology of depression comes from the results of twin, family, and adoption studies (Kashani et al., 1981). In a series of studies with identical twins, an overall concordance rate of 76% was found for affective disorders, compared to a corresponding rate of 19% in nonidentical twins. Studies which followed identical twins reared apart showed a 67% concordance rate. Adoption studies (Mendlewicz & Rainer, 1977; Cadoret, 1978) have also demonstrated increased rates for all psychopathology, and in particular, a significantly higher incidence of depression in adoptees whose biological parents had an affective disorder. At present the role of genetics across subgroups of depressive disorders, and the mode of transmission is not clear.

Biochemical Model

Kashani et al., (1981) noted that there is general agreement with the notion that important biological changes take place during depression. Chemicals called monoamines are released at nerve endings when a neuron fires, and this in turn appears to stimulate the firing of other neurons. The effects of manipulating monoamine-related pathways or structures in animals have been shown to increase rewarding self-stimulation (Akiskal & McKinney, 1975). The hypotheses regarding changes in the level of neurotransmitters in

animals have been carried over into research on human depression. The theorizing about neurotransmitters in adult depression has dealt primarily with two major classes of neurotransmitters, the catecholamines (norepinephrine and dopamine) and the indoleamines (largely serotonin). Kashani and his group (1981) reached the conclusion that there is a general consensus about the existence of "a disorder of catecholamine metabolism or disposition in some, but not all, depressed patients and that this group may be identified biochemically and pharmacologically" (p. 148).

Application of the biochemical model to childhood depression is still at an early stage, and further research is both necessary and feasible. The pioneering work of Cytryn, McKnew & Logue (1974) was recognized by Kashani et al., (1981). These authors found changes in the excretion of urinary metabolites in depressed children, but these changes were not consistent and varied with age. Cytryn and McKnew examined chronically depressed children and found decreased serotonin metabolites in depressed compared to control group children, but there were no significant differences in the level of norepinephrine. Puig-Antich, Chambers, and Halpern (1982) measured plasma cortisol levels in 4 children who met acceptable criteria for endogenous depression and recorded hypersecretion of cortisol in 2 of 4 children while they were depressed. Upon clinical recovery, however, the plasma levels of these two patients subsided. A similar finding had been reported with adult depressives.

More recently, Puig-Antich (1986) has suggested that during childhood development, the balance between different neuro-regulatory systems is not equivalent to that of adults. The studies reviewed by Puig-Antich suggested that "age and puberty factors have major effects in most psychobiological markers of depressive illness (p. 368). Several such markers currently being investigated among children are sleep electroencephalogram (EEG) and growth hormone secretion.

Developmental Perspectives

As may be seen from the preceding section, certain correlates of depression seem to reveal discontinuities between children and adults. Kashani et al., (1981) noted that research on depression in childhood is necessarily more complex than similar research in adults as a result of developmental changes in children. Research in the mid 1980's began to reflect the differential effect of stage of development on depressive symptoms in children.

Kovacs et al., (1984) examined the relationship between depressive symptoms and the child's stage of development. In commenting on the development of self-concept in relation to the correlates of self-depreciation and lowered self-esteem in children, Kovacs (1986) stated that the behaviors manifested by these attributes could be recognized in children, but in different forms depending on the child's developmental level.

Kaslow, Rehm, and Siegel (1984) also felt that by looking at global scores on measures of depressive symptoms, for example the Children's Depression Inventory, age-related differences might be overlooked.

Rutter (1986) also argued for a developmental perspective that could assist with understanding individual differences, and take into account the continuities and discontinuities between children and adult life. For an understanding of depression he remarked that

> the perspective of developmental psychopathology requires that the questions to be posed include those concerning reasons for age differences in frequency, pattern, or manifestation; and those referring to continuities and discontinuities across age periods (p. 25).

Cicchetti and Schneider-Rosen (1986), on the other hand, however argued that one wouldn't find a uniform profile of signs and symptoms of depression in children of different ages. Instead they maintained that

> children of different ages, at different developmental stages, from diverse environments, and with different constitutions and experiences, are likely to manifest vulnerabilities and symptomatology in a wide variety of specific, age-appropriate ways (p. 124).

Thus while there is increasing consensus that research hypotheses need to take into consideration "the biological

reorganizations and the changing integration of competencies in the social, emotional, and cognitive domains" (p. 125), it is still far from clear what descriptive phenomena or mechanisms are critical to the etiology and course of childhood depression.

Self-rating of Depression

The perfect self-rating scale has not yet been devised, therefore this will likely remain at least a minor issue in the debate on childhood depression. Cytryn, McKnew, and Bunney (1980), based on their review of the literature on affective disorders, affirmed the position that the patient - adult or child - remains the major source of information. That is not to say, however, that information from others - parents, teachers, mental health professionals - is not important. Using two concurrent self-measures of depressive symptomatology, namely the Children's Depression Inventory and the newly constructed Child Depression Scale (CDS), Reynolds, Anderson, and Bartell (1985) took their results to suggest the validity of the CDS as a self-report measure of childhood depression. Furthermore, since it appears generally accepted that children are able to provide reliable and valid self-report information on cognitive and affective measures relating to self-esteem, locus of control, and anxiety, it seems reasonable to conclude that a child could respond in a like manner to a self-report depression scale. Kazdin (1981), cited in Reynolds et al., (1985) argued this point cogently when he stated: "It seems

to be especially important in evaluating depression because affective states are likely to manifest in subjective evaluations of one's own experiences" (p. 359).

The literature pertaining to self-report measures of childhood depressed showed support for several such measures. Blackman (1983) validated the Children's Depression Inventory (CDI) against a normal school sample and found it to be a useful screening measure for childhood depression. She further suggested that the CDI would be of maximum value if it were part of a test battery examining other developmental, historical, psychological and sociological factors.

Paananen and Janzen (1986) validated the CDI and the Children's Depression Scale (CDS) in a sample of elementary school children. They concluded that both measures appeared to be measuring the same entity, and that clinicians in a school setting might choose either as part of a battery used to screen for childhood depression.

Quay, Routh, and Shapiro (1987) and Saylor et al., (1984) cautioned about in the use of self-report measures because "pure measures" of depression may not yet exist. Some evidence has suggested that there is a significant overlap between depression as measured on the CDI and other more general aspects of childhood psychopathology. Then too, self-report measures are susceptible to bias due to dishonest reporting, denial of symptoms, or choosing the most socially desireable response.

Such a backdrop provides ample reason for those who advocate and use multiple information sources in an attempt to accurately assess childhood depression (Nelms, 1986; Reynolds, Anderson, & Bartell, 1985; Kerr, Hoier, & Versi, 1987).

A further consideration discussed by Trad (1987) was the potential importance of nonverbal ratings. He cited data in which measures of childhood depression as provided by child rating and parent rating appeared discrepant, but it was found that nonverbal ratings were strongly associated with a diagnosis of depression. The implications of this finding would appear particularly pertinent in situations where self-report may not be feasible such as in infants, or in other special populations where a severe language deficit exists.

In summary, it seems reasonable to conclude that further refinement of self-report measures appears to be an ongoing challenge. The use of data from multiple sources appears advisable in the absence of "pure" measures of depression. Other rating methods may yet be developed, either for use in special populations or as adjuncts in more refined, diagnostic tools.

Teacher Rating of Childrens' Behaviors

Achenbach and Edelbrock (1984) reviewed the literature on behavioral assessment which included reports and ratings by teachers. They remarked that teachers are second only to parents in the amount of contact they have with children.

As such they are in an ideal position to observe children's social and interpersonal skills, and responses to tasks requiring concerted attention, persistence, and organization.

Reynolds, Anderson, and Bartell (1985) compared the effectiveness of reports from three sources in measuring childhood depression: child self-report, parent report, and teacher report. While there was strong support for child self-report depression scores, there was little correspondence between child and parent ratings. However, teachers' global ratings of depression indicated that teachers may be a good source of this information. In a 6-month following-up study of childhood depression Tesiny and Lefkowitz (1980) found that peer-rated depression had the highest stability coefficient, ($r=.79$) followed by teacher ratings and self-ratings, but with all three measures significantly correlated over time.

Kashani, Holcomb, and Orvaschel (1986), who used multiple sources of information to investigate depression and depressive symptoms in preschool-age children found a discrepancy between parent and teacher ratings of depressive symptoms. However, all measures completed by the teachers significantly distinguished between children with depressive symptoms and those without, whereas most of the parent measures did not. These findings not only provided evidence for childhood depression in preschoolers but also

highlighted the importance of data from teachers for this age group.

Kerr, Hoier, and Versi (1987) conducted a review of the literature with a focus on methodological issues and were critical of current studies which used diagnostic criteria for depression other than DSM-III or the Research Diagnostic Criteria. Further concern was directed toward the problem of divergent instrumentation in the young field of childhood depression. Findings indicated that among the 21 checklists and rating scales surveyed between 1977 and 1984, the Children's Depression Inventory and the Connors Teacher Rating Scale were used most frequently. Children were the most frequent source of information, while parents and teachers were secondary sources of reference for data on depressive symptomatology. Classroom peers as a source of data were gaining gradual acceptance. The survey also indicated a trend toward using checklists and less structured interviews, and with fewer studies opting for more comprehensive interview schedules. Observational and descriptive data on children's depressive symptoms which teachers could furnish via an interview format appears virtually untapped at present (Kerr et al., 1987).

Saylor, Finch, Spirito, and Bennett (1984), in systematically investigating the CDI, found that depressed children were rated by teachers as showing more "externalized" pathology. This was taken to suggest the possibility that acting out may also be part of the cluster

of symptoms in the dimensions measured by the CDI. Teacher ratings have also shown depression in children to be associated with inattention and passivity (Leon, Kendall, & Garber, 1980).

In summary, where teacher ratings have been used in multitrait-multimethod studies of depressed children, they have generally been found to provide a reliable measure of depression. Their continued importance is predictable, since, in many instances, teachers may be the first line of defense in the early diagnosis of childhood depression.

The following specific research questions have been formulated to investigate the problems addressed in this study:

(1) What is the incidence of childhood depression in a sample drawn from mild to severe learning disabled and regular class students?

(2) Is there a significant difference between the scores obtained on the CDI by moderate versus severely learning disabled students versus control students?

(3) Is there a significant difference in the way teachers perceive the behavior of moderate versus severely learning disabled versus control group of students as measured by the teacher rating scale?

(4) What factors relative to depression does the teacher rating scale appear to be measuring?

What is the relationship of these factors to depression?

(5) Is the teacher rating scale a useful adjunct as a predictor of childhood depression?

(6) For control group children, what is the correlation between scores obtained on various achievement measures to scores on the CDI?

CHAPTER III

METHODOLOGY

Sample

The sample was drawn from 12 of 26 schools in the County of Parkland No. 31, west of Edmonton, Alberta. Permission to conduct the study was obtained from the superintendent of schools, the principal of each school, and each respective teacher. Two principals opted for their school not to participate; one teacher in another school also declined.

Subjects were students in grades 3-8 inclusive, ranging in age from 8 years 3 months to 15 years 8 months. Participants in the study were placed in one of three groups. Group 1 included students placed in a segregated classroom for the Severely Learning Disabled (SLD). By definition, these are students who have a diagnosed learning disability and are 2 or more years behind their peers in language and/or math achievement. Group 2 comprised of students who have learning deficits and milder learning disabilities (LD), leaving the regular classroom for 1 or 2 periods per day for remedial instruction in a resource room. By definition, these are students whose learning deficit may be from 6 months to 2 years. Group 3, the control group, was made up of two classes chosen from each of grades 3 through 8. This group was comprised of normally achieving students with no known handicaps. LD students placed in any

of these regular classes were assessed in the resource room at an alternate time.

SLD students were drawn from 7 schools while LD students came from 6 schools of which one overlapped with the previous 7. The control group was also selected from 6 schools. The County of Parkland is the largest in Alberta in terms of geographical size. The 12 schools are representative of the east and west areas of the County, its city, two towns, rural area and acreages.

A total of 532 letters were sent to parents outlining the nature of the study and requesting permission for their children's participation. Only those students who returned permission slips were allowed to participate in the study. The final sample consisted of 324 (60.9% of those sampled) students comprising 186 boys and 138 girls. There were 54 grade 3 students (30 males, 24 females), 69 grade 4 students (36 males, 33 females), 38 grade 5 students (25 males, 13 females), 57 grade 6 students (31 males, 26 females), 54 grade 7 students (32 males, 22 females), and 52 grade 8 students (32 males, 20 females).

Instruments

The Children's Depression Inventory CDI (Kovacs, 1982)

This test is a downward extension of the Beck Depression Inventory (Beck, 1967), a self-rated symptom scale for adults. Kovacs felt that to use an adult scale as a starting point for assessing childhood depression was justified on the basis of literature which indicated a

significant overlap between the salient features of depressive disorders in juveniles and in adults (Kovacs, 1983).

The instrument consists of 27 items, each of which allows for three choices. Kovacs (1983) stated that "the CDI quantifies a wide range of depressive symptoms including disturbances in mood and hedonic capacity, vegetative functions, self-evaluation, and interpersonal behaviors" (p. 5). Several items relate specifically to the consequences of depression in a school setting. Each item is scored 0,1, or 2, with the higher value indicative of more severe psychopathology. Thus the range of possible total scores is 0-54. The test is suitable for children aged 8 to 17 years.

The CDI may be administered individually or in small groups. Each student is given a copy of the inventory on which to mark his answers. Instructions as well as each CDI item are read aloud so as to ensure proper understanding for students with possible reading or attentional difficulties. Kovacs (1981) has suggested that a total CDI score of 9 is average for a normal school population, while for the diagnosis of depression a score of 19 is required.

Psychometric properties of the CDI have been described by Kovacs (1981, 1985). A positive correlation ($r = .55$ $p < .001$, $n = 39$) was found when scores on the CDI were compared with a psychiatrist's clinical rating of depression. Kovacs (1985) analyzed the internal consistency of the CDI by means of coefficient alpha. In her

diagnostically heterogeneous, psychiatric sample, the coefficient was .86. However, for a pediatric-medical outpatient group which had been diagnosed as insulin-dependent diabetes mellitus (IDDM), the scale's internal consistency was .70. When the IDDM group was tested again, one year after the initial diagnosis, the internal consistency of the CDI was higher with alpha coefficient = .82.

Saylor et al., (1984) noted that the test-retest reliability of the CDI ranges from excellent (.94) to poor (.38) depending on interval length and population. Kovacs herself (1985) has concluded that "the construct which is quantified by the CDI does not have the same "reality" to different respondent groups" (p. 996).

In reporting on the concurrent validity of the CDI, Kovacs (1985) noted that its association with two related constructs, namely, the Revised Children's Manifest Anxiety Scale (Reynolds & Richman, 1978) and the Coopersmith Self-Esteem Inventory (Coopersmith, 1967) yielded highly significant correlations of ($r = .65$ $p < .0001$, $n = 55$) and ($r = -.59$ $p < .0001$, $n = 51$) respectively.

CDI data were made available to the instrument's author on a large sample of students ($n = 860$) tested in the Toronto public schools. Students were 8 to 14 year olds in grades 4 through 8, with slightly more boys than girls. Factor analysis of the data using Varimax rotation yielded one principal factor that accounted for 63.7% of the

variance. Kovacs (1985) concluded that in a large "normal" population, the CDI may act as a unidimentional scale.

Data on the discriminant validity of the CDI have been equivocal. Based on available data, Kovacs (1985) concluded that the CDI cannot differentiate "normals" from a heterogeneous child psychiatric sample. Other findings (Kovacs, 1985), however, do suggest that the CDI can discriminate certain diagnostic groups as operationalized in the DSM-III (American Psychiatric Association, 1980). The CDI was not designed as a diagnostic tool, and Kovacs also cautioned that the inventory alone should not be used to select research subjects. Other researchers (Saylor et al., 1984) have reinforced the argument that information be gathered from multiple sources when examining childhood depression. Kovacs (1985) has concluded that the CDI "can serve as an index of the severity of depression and, probably, as a measure of change " (p. 998).

Paananen and Janzen (1986) used three concurrent estimates to measure the incidence and characteristics of depression in 610 elementary students in grades 4 to 6. Two of the measures were self-report scales, namely, the Children's Depression Inventory (CDI) and the Children's Depression Scale (CDS). Parents provided the third estimate by completing a questionnaire concerning their childrens' behavior into which the DSM III criteria for depression were embedded. The data suggested that the CDI and the CDS were basically measuring the same entity and identifying the same

children, but the CDS was less inclusive. Also noted was that the depressive symptoms on the parent questionnaire (DSM III symptoms) appeared to be only minimally related to the self-report scales. Findings based on the use of these three measures indicated that the parent questionnaire with DSM III symptoms identified 2.13% of the children as depressed while the CDS identified 4.10% and the CDI identified 9.18 % of the population as depressed.

Blackman (1983) attempted to validate the CDI as a screening device for childhood depression. Her sample included 60 children in a psychiatric clinic who were between the ages of 6 to 13 years, and a group of normal school aged children aged 7 to 12 years. The hypothesis that the CDI can differentiate between depressed children as diagnosed by a child psychiatrist, and a comparison/control group of normal children, and that the CDI can also differentiate between depressed children, and children diagnosed by a child psychiatrist as suffering from an emotional disorder other than depression was supported. Also a significant positive correlation was found between CDI scores and the clinician's rating of depression ($r = .49$, $p < 01$). This finding provided supporting evidence that the depression syndrome measured by the CDI is similar to that measured by the child psychiatrist. When the clinic sample was divided into groups classified as nondepressed, mildly depressed or moderately depressed according to clinical psychiatric diagnosis, the CDI scores were found to

be significantly different between, (a) the nondepressed clinic group and the moderately depressed clinic group, (b) the normal/control and the moderately depressed clinic group, (c) the mildly depressed clinic group and the moderately depressed clinic group. There was no significant difference between the means of: (a) the nondepressed and mildly depressed clinic groups, (b) nondepressed clinic children and the control/comparison group, and (c) the control/comparison group and the mildly depressed clinic group. From these data it was concluded that the CDI appears to be an effective screening device for children with a more severe depressive syndrome, and that it could also be a good severity measure for childhood depression.

Blackman also reported that for her sample of normal school children (n = 215), 11% of the sample could be considered depressed. This was consistent with Kovacs (1981) who set the CDI cut-off score at 19 so as to coincide with the 10% criterion for deviance in a normal population. Lefkowitz (1980) stated that if the prevalence of a behavior is to be considered statistically deviant from the normal population then it should be present in 10% or less of the population.

Teacher Rating Scale (TRS)

The TRS is one component of an ecological approach to behavioral assessment called the Behavior Rating Profile (BRP) constructed by Brown and Hammill (1978, 1983). It was designed specifically to provide an ecological evaluation of

students' behaviors that also met the standards for educational and psychological tests and manuals as set out by the American Psychological Association (1974). The TRS (as part of the BRP) provides data to support its standardization, reliability, experimental validation, and it is norm-referenced. Results are reported in terms of standard scores and percentile ranks. Raw scores may be entered at various age and grade intervals to produce a standard score with a mean of 10 and a standard deviation of 3. Thus the scale is able to assess whether behavior is perceived as being different from the norm in a variety of settings and from a number of points of view such as teachers, parents, peers or self. The BRP has not attempted to represent a comprehensive sampling of childrens' behaviors, but it has been used to help identify students who are suspected of being emotionally disturbed, behavior disordered, or learning disabled.

The TRS consists of 30 items which a teacher rates on a 4 point scale ranging from "very much like the student" to "not at all like the student". The behaviors are all problem - or negatively oriented, and are weighted "0" if the behavior is strongly exhibited, or "3" at the other extreme, if that behavior is not seen in a particular student. Teachers require approximately 3 to 5 minutes per student to complete the scale.

The authors reported three types of reliability for the BRP. Internal consistency was examined using Coefficient

Alpha. With .80 selected as the minimum criterion for test reliability, 21 of the 25 coefficients reported exceeded this level; 6 were at .90 or above. The remaining 4 coefficients were all in the .70s. As may be expected for tests with high reliabilities, the BRP has a small standard error of measurement. Test-retest reliability of the BRP ranged from a low of .78 on the Student Rating Scale:Home to a high of .91 on the Teacher Rating Scale (TRS). The authors reported similar test-retest reliabilities when the BRP was administered to emotionally disturbed and learning disabled students.

Construct validity of the BRP was tested by examining the intercorrelations among its subtests. The coefficients reported ranged in size from .49 to .96. These values were all significant beyond the .01 level of confidence and also exceeded the minimum criterion of .35 that had been selected. In a further test of construct validity the authors examined the correlations between BRP scales that were designed to assess behaviors in the same ecological setting. With one exception, namely, the correlation between the Student Rating Scale:School, and the Teacher Rating Scale for the parochial school group, the coefficients strongly supported the construct validity of the BRP. As a final estimate of construct validity, the BRP was shown to discriminate between groups of students who were classified as public school normal, emotionally disturbed, and learning disabled, and institutionalized

emotionally disturbed. For the purpose of the present study, it was interesting to note that on the TRS, teachers tended to perceive public school emotionally disturbed and learning disabled students about the same.

Face validity of the BRP was established on the basis of item analysis and statistically significant item validities obtained during the construction of the scales. Criterion - related validity was estimated by correlating the components of the BRP with the Walker Problem Behavior Identification Checklist, the Quay - Peterson Behavior Problem Checklist, and the Vineland Social Maturity Scale. Since only 8 of the 72 Correlation coefficients did not reach the desired level of significance,the authors concluded that a considerable relationship exists among the scales.

Administration of the Instruments

Letters which outlined the nature of the study were sent to parents. Only students whose parents returned an attached permission slip were included in the study. Students were told that the writer wished to learn about how they think and feel about various things. Instructions for the CDI were then followed as set out on the covering page of the inventory, and as outlined in the administration guide prepared by Kovacs (1978). Instructions and all items were read aloud to each group of students in their respective settings, that is, SLD students in their segregated classroom, and LD students in the "Resource

Room". Neither SLD nor LD students appeared to have any difficulty with the CDI. Pacing was altered to accommodate age of students and their rate of working. The CDI required approximately 25 minutes per group to complete. Questions about the nature of the study were answered after completion of the inventory; other questions were dealt with as they arose. Administration of the CDI was conducted over a ten week period in the spring of 1988.

The TRS was, in most cases, completed by the teacher while the CDI was being administered. Teachers were requested to fill in a student's first name and last initial only, grade, rater's initials, school, and date on page 1 of the TRS. They were then asked to follow the instructions on page 2 and to provide ratings for each of the 30 items. Twenty-one of 24 teachers returned the TRS within a week's time. Three teachers needed a reminder and additional time.

Permission was also obtained to search student cumulative records to access data pertaining to standardized math and reading scores.

Analysis of the Data

Research question 1 was addressed by computing a z score. This statistical method for estimating deviant scores in a population was then compared to the actual number of students who scored above the cut-off of 19 in the present samples.

Analysis of variance procedures were used to determine whether significant differences existed between the mean

scores for depression in SLD vs LD vs control students, and between the mean scores for each respective group on the TRS.

To determine what factors in the present data were being measured on the TRS, a principal components factor analysis with a varimax rotation was performed. Pearson Product Moment Correlations were calculated to examine the relationship between scores on the TRS and CDI.

Finally in research question 6 correlation coefficients were calculated to examine the relationship of depression to various achievement measures for control group students. For all statistical tests, the significance level was set at $p < .05$.

CHAPTER IV

RESULTS

The results are reported according to the traditional format. Each research question is restated, followed by statistical data, and appropriate observations.

Question 1 -- What is the incidence of childhood depression in a sample drawn from mild to severe learning disabled and regular class students?

The CDI was used as the estimate of possible depression, and a cutoff score of 19 was chosen based on the suggestion by Kovacs (1981). Using the z score and areas of the normal curve, and given a mean score on the CDI of 9.77 and a standard deviation of 7.53, 11.0% of the present sample would be classified as highly at risk for depression. In actuality, 42 students equalled or exceeded the cutoff point (N= 324), thus yielding an incidence of 12.96% in the combined sample.

Percentages were calculated for each research group; the results are reported in Table 1. (percentages were also calculated by grade, with males and females separated; these results have been recorded in Table A of Appendix 1).

Question 2 -- Is there a significant difference between the scores obtained on the CDI by moderate versus severely learning disabled students versus control students?

An analysis of variance procedure was used to compare the CDI means of each group, for each grade, and for girls and boys.

TABLE 1

INCIDENCE OF DEPRESSION BY RESEARCH GROUP

CDI

	N	%
mild/moderate learning disabled (n =56)	4	7.1
severely learning disabled (n =44)	9	20.5
regular class students (n =224)	29	12.95
total sample (n =324)	42	12.96

The comparison was also extended to account for any possible significant interaction effects among these three variables. Results have been recorded in Table 2. A significant difference was found between group means only. That is, there was no significant difference for grade or sex, nor were there any interaction effects. Analysis of variance for the group comparison has been reported in Table 3..

Group means ranged from 8.32 for mild/moderately learning disabled (LD) to 13.14 for severely learning disabled (SLD) students. Although this difference was found to be statistically significant, it represents approximately a half standard deviation difference - one that would not be considered as "clinically different".

Question 3 -- Is there a significant difference in the way teachers perceive the behavior of moderate versus severely learning disabled versus control group of students as measured by the teacher rating scale?

With teacher rating scale as the dependent variable an analysis of variance procedure was used to test for significant differences between research groups, between grade, and sex variables.. The results have been reported in Table 4. Results showed that teachers perceived student behavior differently depending on whether they were LD, SLD, or regular class students.

TABLE 2

ANALYSIS OF VARIANCE OF CHILDREN'S DEPRESSION INVENTORY MEANS FOR GROUP, GRADE AND SEX

Source of Variance	DF	F Value	Significance
Group	2	3.25	.04 ***
Grade	5	0.57	.72
Sex	1	0.03	.87
Group x Grade	8	1.28	.25
Group x Sex	2	0.27	.76
Grade x Sex	5	1.00	.42
Group x Grade x Sex	6	1.10	.36

*** significant at the 0.05 level

TABLE 3

ANALYSIS OF VARIANCE; GROUP COMPARISON ON THE CDI
TUKEY'S STUDENTIZED RANGE (HSD) TEST OF SIGNIFICANCE

Group Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Simultaneous Upper Confidence Limit
1 - 3	-0.4516	2.4623	5.3761
1 - 2	0.2551	3.8149	7.3748 ***
3 - 1	-5.3761	-2.4623	0.4516
3 - 2	-1.2847	1.3527	3.9927
2 - 1	-7.3748	-3.8149	-0.2551 ***
2 - 3	-3.9927	-1.3527	1.2874

group 1 - severely learning disabled

group 2 - mild/moderate learning disabled

group 3 - regular class students

*** significant at the 0.05 level

TABLE 4

ANALYSIS OF VARIANCE OF TEACHER RATING SCALE MEANS FOR GROUP, GRADE AND SEX

Source of Variance	DF	F Value	Significance
Group	2	18.77	.0001
Grade	5	2.22	.0520
Sex	1	21.66	.0001
Group x Grade	8	4.32	.0001
Group x Sex	2	6.78	.0013
Grade x Sex	5	4.50	.0006
Group x Grade x Sex	6	1.77	.1051

Teachers generally tended to rate student behaviors of regular class students as significantly more positive than either LD or SLD, but there was no significant difference in perception of LD versus SLD students. However, teachers also rated student behavior differently depending on which grade a student was in, or whether the student was a girl or a boy. Interaction effects among these three variables were significant, and these effects were plotted on Tables 5, 6, and 7.

When the effects of group and grade were taken together there was an interaction effect in grades 4 and 6. In grade 4 teachers tended to perceive the LD and SLD groups similarly but regular class students were rated much more positively. However in grade 6, behaviors of the SLD group and regular class students were rated about the same and behaviors of the LD group were rated lower. Otherwise the general tendency (for those students in grades 3 through 6 for whom data was available in all three research groups) was for the behavior of regular class students to be rated highest while that of the SLD group was lowest.

The group by sex interaction effect (Table 6) showed that teacher behavior ratings for girls was generally higher than for boys, but that in the LD group their perceptions did not differ much. When the grade by sex interaction was considered, the same general relationship was evident. That is, the behavior ratings for girls across all grades were rated more positively than those for boys.

TABLE 5

INTERACTION EFFECTS ON THE TEACHER RATING SCALE: GRQUP BY GRADE

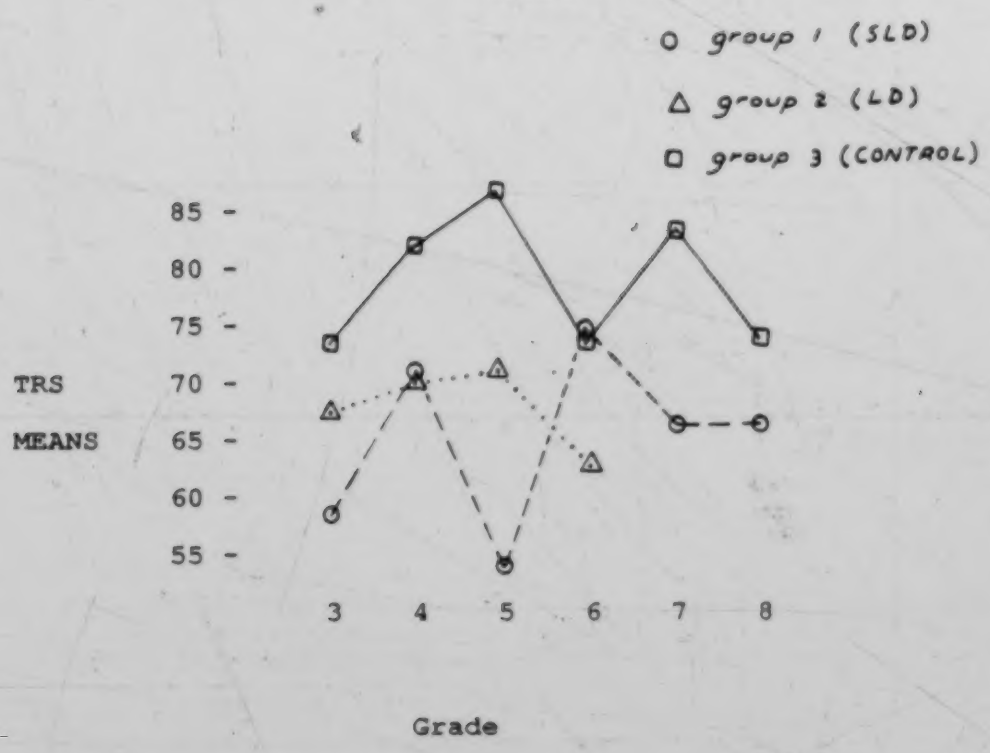


TABLE 6

INTERACTION EFFECTS ON THE TEACHER RATING SCALE: GROUP BY SEX

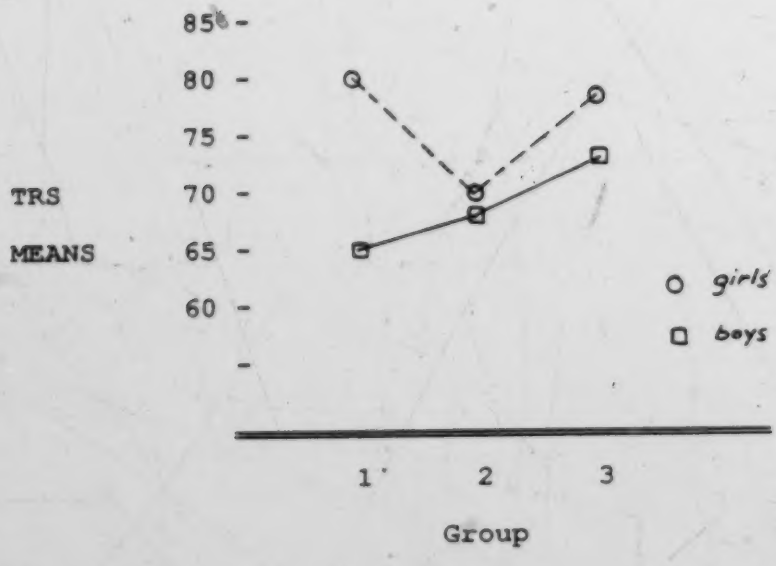
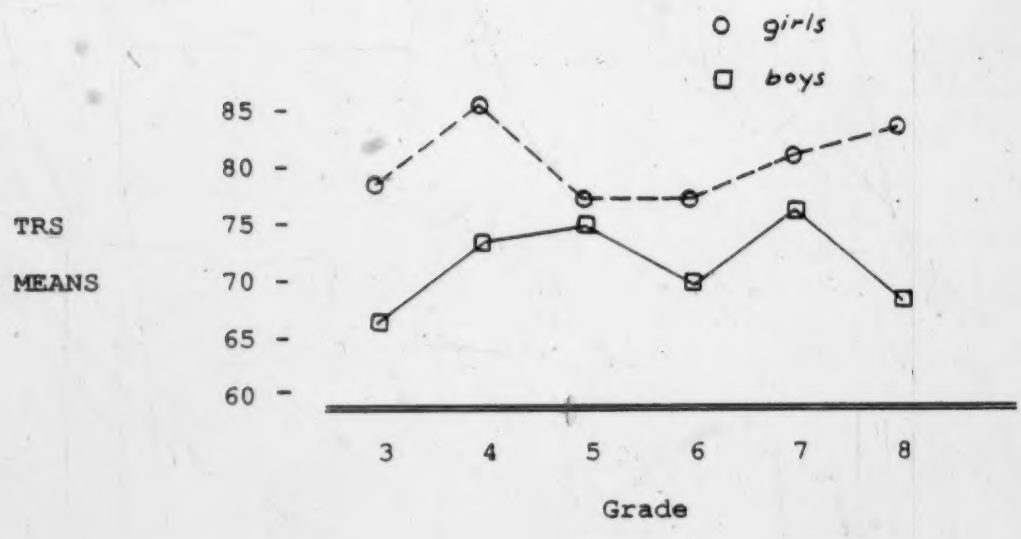


TABLE 7

INTERACTION EFFECTS ON THE TRS: GRADE BY SEX



Question 4 -- What factors relative to depression does the teacher rating scale appear to be measuring?

A principal components factor analysis with a varimax rotation was performed on the 30 items of the TRS to determine what factors, relative to depression, this scale might be measuring.

Five factors which accounted for 68.3% of the total variance emerged. All factor loadings above .41 are reported in Table 8.

Factor 1 -- Aggression - Verbal

Items of the TRS with high loadings on this factor were characterized by aggression directed outward by the child. Examples of items which defined this factor were: is verbally aggressive to teachers or peers, tattles on classmates, disrupts the classroom, argues with teachers and classmates, bullies other children, is disrespectful of others' property rights. Aggression directed outward from the self has been associated with depression in children.

Factor 2 -- Passivity, Low Attention/Concentration

This factor was defined by behaviors suggesting a passive and withdrawn child, whose concentration and attention are weak. Typical behaviors loading on this factor were: lacks motivation and interest, daydreams, can't seem to concentrate in class, doesn't follow directions, is lazy, is an academic underachiever, does not do homework assignments. Passivity

TABLE 8

ROTATED FACTOR LOADINGS: TEACHER RATING SCALE

item # on TRS	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	
2	.750					
8	.746					
7	.729					
16	.715					
19	.704					
18	.652					
3	.634					
1	.626				.419	
4	.525			.412		
6		.850				
5		.809				
14		.800				
20		.784				
23		.746				
9		.724				
17		.673				
30	.456	.490				
13			.783			
27			.780			
22			.742			
26			.579			
12			.553			
15			.454			
28				.829		
10				.792		
25				.540		
29		.422		.508		
24			.434		.644	
11					.605	
21		.464			.477	
% Tot. Var.	19.3	19.2	12.9	10.8	6.1	68.3

and withdrawal have also been strongly associated with depression in both adults and children.

Factor 3 -- Social Rejection

The behaviors loading on this factor were related to social isolation and rejection. Examples of such behaviors were: says that other children don't like him/her, is avoided by other students in the class, has no friends among classmates, is passive and withdrawing.

Factor 4 -- Anti-Social

The behaviors defining this factor were all anti-social in nature, and several of these overlap with conduct disorder. The five behaviors loading on this factor were: is disrespectful of others' property rights, steals, swears in class, cheats, lies to avoid punishment or responsibility.

Factor 5 -- Self-Discipline

This factor was defined by items relating to poor self-regulation and self-care. The four items loading on this factor were: is sent to the principal for discipline, is kept after school, has poor personal hygiene habits, has unacceptable personal habits.

Question 5 -- Is the teacher rating scale a useful adjunct as a predictor of childhood depression?

To test this hypothesis, factor scores for each of the 5 rotated factors were correlated with depression scores on the CDI. Results are presented in Table 9.

Modest but significant negative correlations were

TABLE 9

PEARSON CORRELATION COEFFICIENTS: FOR ROTATED FACTOR SCORES ON THE TEACHER RATING SCALE WITH CHILDREN'S DEPRESSION INVENTORY SCORES

	CDI	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5
CDI	1.00000	-0.18169	-0.16611	-0.07695	-0.08076	-0.14470
P	0.0000	0.0013*	0.0033*	0.1759	0.1554	0.0106*
N	324	311	311	311	311	311

* significant beyond .05 level

obtained for factors 1, and 2 ($p<.001$), and for factor 5 ($p<.01$). This suggested that lower ratings by teachers on those items loading on each of the 3 factors of the TRS were predictive of higher self-ratings of depression on the CDI. Factors 3 and 4 were not correlated with CDI scores.

In order to determine the strength of relationship of individual behaviors on the TRS to CDI scores, raw scores across all individuals on each behavior defining the 5 rotated factors were correlated to depression scores. For this analysis, only those behaviors on each factor with a loading of .5 or higher were included, so as to avoid the confounding effect of behaviors loading on two different factors. Correlation coefficients are presented in Table 10. Twenty-five of the 27 individual behaviors had a statistically significant negative correlation with depression score. Previous correlations had been based on factor scores, and statistically significant correlations had ranged from .14 to .18. Therefore present correlations above .20 were taken as representing those behaviors that were most predictive of depression according to teacher ratings.

For factor 1, which may be described as a 'depression-out' dimension, two behaviors exceeded the .2 correlation, namely: disrupts the classroom, and is sent to the principal. On factor 2 described as a 'depression-in' dimension, 3 behaviors exceeded the cutoff, that is: lacks motivation and interest, is lazy, and does no homework. On factor 3 which

TABLE 10

PEARSON CORRELATION COEFFICIENTS: FOR EACH BEHAVIOR ON THE TEACHER RATING SCALE WITH CHILDHOOD DEPRESSION INVENTORY SCORES

FACTOR 1:	TRS 2	TRS 8	TRS 7	TRS 16	TRS 19
CDI	-0.16615	-0.18396	-0.30455	-0.18826	-0.13030
p	0.0029*	0.0010*	0.0001*	0.0007*	0.0201*
N	319	319	319	319	318

FACTOR 1:	TRS 18	TRS 3	TRS 1	TRS 4
CDI	-0.18423	-0.16815	-0.23902	-0.13239
p	0.0009*	0.0026*	0.0001*	0.0180*
N	319	319	319	319

FACTOR 2:	TRS 6	TRS 5	TRS 14	TRS 20	TRS 23
CDI	-0.27692	-0.31844	-0.17715	-0.21530	-0.12826
p	0.0001*	0.0001*	0.0015*	0.0001*	0.0222*
N	319	318	319	319	318

FACTOR 2:	TRS 9	TRS 17
CDI	-0.18082	-0.15870
p	0.0012*	0.0045*
N	318	319

TABLE 10 (CONTINUED)

PEARSON CORRELATION COEFFICIENTS: FOR EACH BEHAVIOR ON THE TEACHER RATING SCALE WITH CHILDHOOD DEPRESSION INVENTORY SCORES

FACTOR 3:	TRS 13	TRS 27	TRS 22	TRS 26	TRS 12
CDI	-0.25531	-0.21053	-0.23982	-0.04006	0.01917
p	0.0001*	0.0002*	0.0001*	0.4779	.7331
N	319	317	319	316	319

FACTOR 4:	TRS 28	TRS 10	TRS 25	TRS 29
CDI	-0.14751	-0.18705	-0.14832	-0.21394
p	0.0084*	0.0008*	0.0080*	.0001*
N	318	319	319	318

FACTOR 5:	TRS 24	TRS 11
CDI	-0.13091	-0.12794
p	0.0193*	0.0223*
N	319	319

Note: different N reflects items omitted by teachers on the Teacher Rating Scale

* indicates significance level beyond .5 level was reached

was named social rejection, two behaviors showed no significant correlation with depression scores while the other three showed a highly significant but modest negative correlation with CDI scores. The latter behaviors were: says others don't like him, has no friends in class, and is avoided by other students. One of four behaviors on factor 4 exceeded the .2 cutoff, namely: lies to avoid punishment or responsibility. Of the two behaviors on factor 5 with a factor loading of .5 or higher, neither reached the selected correlation value of .2.

Question 6 -- What is the correlation between scores obtained on various achievement measures to scores on the CDI?

Grade equivalent scores on the total language and total math sections of the Canadian Test of Basic Skills, as well as the vocabulary and comprehension subtests of the Gates MacGinitie Reading Test were correlated with scores obtained on the CDI. No significant relationship was found between any of the achievement measures and depression. These results have been recorded in Table B of Appendix 2.

It should be noted, however, that in some cases N was very small because the same tests were not available across all subjects. In addition, data for some junior high students was up to 3 years old. Thus with a range of constants added to scores for control as well as learning disabled students, data could be expected to be distorted and difficult to generalize from.

CHAPTER V

DISCUSSION

This study undertook to assess the incidence of childhood depression in mild to severe learning disabled students and a control group of regular class students in grades 3 through 8. A second purpose was to examine the teacher's role in assessing students' behavior, in particular through the use of the Teacher Rating Scale of the Behavior Rating Profile (Brown & Hammill, 1983). The relationship of the TRS to depression was assessed. Finally depressed and nondepressed students were compared on measures of academic achievement.

With regard to incidence, using a cutoff score of 19 as suggested by Kovacs (1981) and others, 12.96% of the sample would be considered highly at risk for depression. This result is in keeping with that of Stevenson and Romney (1984) who found 14%, and Winter, Cole, and Wright (1983) who reported 15% of students depressed in their survey of LD children.

Looking at each research group separately, mild/moderate LD students had the lowest incidence of depression at 7.1%, followed by the control group at 12.95%, and SLD students at 20.5%. The finding of lowest incidence among mild/moderate LD students was contrary to expectation. This may suggest that LD students are benefiting from and

perceiving positively their mode of special education intervention.

When the two special education groups were combined the incidence was 13%. Thus there was essentially no difference between regular class students (controls) and the combined LD and SLD groups. This finding matched that of Stevenson and Romney (1984) who also concluded that LD children were not more depressed than children at large. Incidence of depression among learning disabled students who also meet criteria for childhood depression ranged from 23% (Pearce, 1977), to 59% (Weinberg et al., 1973). Saklofski and Janzen (1986) in their discussion of incidence of depression among children concluded that the incidence of severe depression is generally low, but that an increase may be expected for children and adolescents who experience educational, medical and personal problems.

Also of note in the present sample was the finding that girls in each group had a higher percentage of depressed scores than boys. This was especially noteworthy in the LD and SLD groups where boys in this sample were seen to outnumber girls by a 2:1 and 5:1 ratio respectively. A similar trend toward higher prevalence was reported in other studies (Paananen, 1983; Lefkowitz & Tesiny, 1985).

It was expected that CDI scores for regular class (control group) students would be lowest while the SLD group would score highest. Findings showed the LD group with the lowest mean score (8.32) on the CDI, and the SLD group with

the highest mean score (13.14). Mean score for the control group was 9.67, with a standard deviation of 7.84. Scores for the control group were almost identical to those in two large samples: Central Pennsylvania school children and Toronto public school students, in studies described by Kovacs (1983, Unpublished Manuscript). The finding of lowest mean for the LD group may be due to sampling bias, that is, only 47.9% of parents of LD students gave permission for their child to participate in the study. Thus it is conceivable that the most depressed children may have been overprotected by their parent(s), and not represented in the sample.

A follow-up to the parent of each student at or above the cutoff score of 19 on the CDI was conducted by phonecall and letter. Once parents had been informed of their child's self-rating, and suggestions had been offered for further follow-up, most parents spontaneously provided information about their child's symptomatology. The symptoms, stressors, or precipitants mentioned served to cross-validate the "depressed score". For example, one student's parents had recently lost the family business and father had a serious illness, for another both parents were reportedly working 7 days a week; one girl was described as having a 'real self-esteem problem' and had recently missed a significant amount of school, and in several cases students were described as very high achievers, but unable to please their parents or themselves. In other cases the apparent

depression was associated with severe behavioral problems (stealing, lying), bedwetting, medical illness, family instability (divorce), and extreme sibling rivalry or competition.

Kovacs (1983) underscored the fact that the CDI has less usefulness as a diagnostic tool, but appears to serve quite well as a measure of severity or of clinical change within the syndrome of depression. This fact was also reiterated in Blackman's (1983) validation study of the CDI. In the present study the difference between the CDI means of the control and SLD group supported the notion of the CDI as a severity measure.

It was hypothesized that teachers would perceive behaviors of LD and SLD students more negatively than those of control group students as measured by the TRS. This expected effect was supported, but in the context of other effects and interactions as well. That is, teachers perceived the behaviors of girls to be significantly more positive than those of boys. The effect of grade on ratings of behavior was just short of the significance level chosen. The effect of sex on behavior rating, while not entirely unexpected, was nevertheless surprising in view of the fact that girls tend to present a higher incidence of depression than boys. Thus higher behavior ratings for girls would run counter to the idea of teachers being a good predictor of depression among this sex. In view of the foregoing, it may be concluded that teachers' differential rating of students'

behavior was not a simple function of which research group the student was in.

There is support in the literature for the idea that teachers may be reliable reporters of children's depressive symptoms (Tesiny & Lefkowitz, 1980; Reynolds, Anderson, & Bartell, 1985; Kashani, Holcomb, & Orvaschel, 1986). Moreover, Kerr (1987) observed the need for further tapping the observational and descriptive data that teachers can provide regarding childhood depression.

The TRS, used in this study, was a general measure of 30 behaviors commonly seen in children but with no known relationship to depression. However, among the 30 behaviors it was noted that there were a number that have been associated with depression in children. Therefore a factor analysis was performed on the TRS to reduce the number of variables of this scale, and to examine the possibility of a theoretical relationship of any of these factors to depression.

Using a principal components analysis with a varimax rotation, the 30 variables of the TRS reduced to 5 factors with an eigenvalue greater than 1. The factors, in order, were then named: factor 1 -- Aggression-Verbal, factor 2 -- Passivity, Low Attention/Concentration, factor 3 -- Social Rejection, factor 4 -- Anti-social, and factor 5 -- Self Discipline.

Factor 1 was characterized by aggressive actions or words that are typical of the acting-out child. The

literature (Saklofski & Janzen, 1986) suggests that an underlying depression in children may be reflected by widely ranging symptoms and behaviors such as enuresis and encopresis, hyperactivity, physical and verbal aggressiveness, firesetting, and school related difficulties - including learning disabilities. Saylor, Finch, Spirito, & Bennett (1984), found that depressed children were rated by teachers as showing more "externalized" or "acting-out" pathology. Thus it was expected that this factor might be correlated with the measure of depression on the CDI.

Factor 2 was defined by behaviors suggesting a passive and withdrawn child, not actively interacting with his environment. Leon, Kendall, and Garber (1980) indicated that teacher ratings have shown depression in children to be associated with inattention and passivity. The behaviors defining this factor are most closely related to the vegetative function and psychomotor retardation recognized as central to adult depression in DSM-III-R (American Psychiatric Association, 1987). As such, this factor would also be expected to correlate with depression scores. In children, non-participation and withdrawal behavior is the easiest for teachers to ignore or overlook, yet it may be a more serious sign of psychopathology.

Factor 3, social rejection, is closely akin to the notion of parental rejection which has been associated with childhood depression (Poznanski, Krahenbuhl, & Zrull, 1976; Lefkowitz & Tesiny, 1985). However, it is unclear what the

precise relationship of social rejection to depression might be.

Factor 4, characterized by anti-social behaviors, may be considered to have significant overlap with conduct disorder. As such, this factor might be expected to be more predictive of conduct disorder than childhood depression.

Factor 5 was defined by items relating to poor self-regulation and self-care. It may be argued that these behaviors can contribute significantly toward defining a child's self-concept. Lowered self-esteem is believed to be a central feature in adult and childhood depression (Paananen, 1983; Brown, Harris, & Bifulco, 1986; Cicchetti & Schneider-Rosen, 1986). If this is so, then this factor could also be expected to be predictive of depression.

A modest, but statistically significant, negative, correlation was found between factors 1, 2 and 5, and the CDI. This suggested that low ratings by teachers on the behaviors comprising factor 1 (which could also be conceptualized as a 'depression-out' factor), were modestly predictive of a higher CDI score. Likewise, factor 2, which may be described as a 'depression-in' dimension, was also modestly predictive of a higher depression score. Finally factor 5, which was believed related to self-esteem, was similarly predictive of a higher depression score.

A further analysis was performed to ascertain which behaviors on each of the 5 rotated factors might be the most predictive of higher depression scores. Results showed that

twenty-five of 27 behaviors had statistically significant negative correlations with CDI score. Out of these 25 behaviours, nine may be considered to be the best predictors of self-rated depression on the CDI. On the basis of these data it was concluded that the TRS could prove to be a useful adjunct in screening for childhood depression.

Implications for Education

The CDI is one of the most widely used self-rating scales for the measure of depression among children. Its usefulness and validity as a screening measure have been attested to by others (Blackman, 1983; Paananen, 1983). The present study also supported the use of the CDI as an initial screen for childhood depression.

The cutoff score of 19 on this instrument proved satisfactory since it produced a statistical estimate of deviance of 11% in the present sample. As a screening measure, this level of deviance could be considered acceptable.

The CDI produced an actual incidence of 12.96% of students in the combined sample who may be considered highly at risk for childhood depression. The 20.5% incidence among SLD students was in keeping with other such estimates (Weinberg, 1973; Pearce, 1977) for special education and clinic samples, and the 12.95% incidence among control students was also very consistent with previous findings (Winter, Cole, & Wright, 1983; Stevenson & Romney, 1984). These numbers, when projected to an entire school

jurisdiction, represent a significant number of students whose underachievement may be due to childhood depression.

The findings in this study of a significant difference between the CDI means of research group 1 and 2 was taken to support the notion of the CDI as an effective severity measure. This should alert the school psychologist - especially for severely underachieving special education students - to the fact that a higher score on the CDI may be indicative of an acute or chronic form of depression, along with other possible psychopathology that requires further investigation.

The school psychologist should further be alerted to those 9 behaviors on the TRS that were most predictive of self-rated depression. For example, when teachers who refer students for assessment/consultation provide any of these 9 among the presenting problems, this should sound the alert to screen for possible depression. At this point the CDI and TRS might be useful. In some cases this type of screening might avoid unnecessary intellectual evaluation and the dangers of mislabelling that can follow from indiscriminant assessment.

Recommendations for Further Study

1. Research is needed to clarify the relationship of depression to academic achievement.

2. Research is needed to determine whether children identified as depressed by the Children's Depression

Inventory would be diagnosed as depressed by independent psychiatric ratings.

3. Further studies are needed to determine if depressive symptomatology/syndromes in children persist over time, and to determine if the nature of these symptoms change with age.

4. Further research is needed to study teacher rating of depression among students.

5. Follow-up research to the present study would be useful in determining how well the Children's Depression Inventory and the Teacher Rating Scale function as predictors of childhood depression.

Summary

Results of this study suggested that from 7-21% of learning disabled students are highly at risk for depressive syndromes. In a control group of regular class students, 13% appeared highly at risk. Thus the results suggested that there was essentially no difference in the incidence of depression between regular class students (controls) and the combined LD and SLD groups. The finding of a distinct trend that girls in each research group had a higher percentage of depressed scores than boys was also noted.

Teachers were found to perceive the behaviors of LD and SLD students more negatively than those of control group students. However, they also perceived the behaviors of girls to be significantly more positive than those of boys.

The 30 behaviors of the TRS reduced to 5 factors - 4 of which might be expected to be theoretically related to depression. Results showed 3 factors to be significantly correlated with self-rated depression scores. Among these factors, nine behaviors were the most effective in predicting students' depression scores.

Implications for the school psychologist to screen for depression as opposed to other learning problems were discussed. Suggestions for further research were made.

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APPENDIX 1

INCIDENCE OF DEPRESSION IN %: BY GRADE AND RESEARCH GROUP, WITH BOYS AND GIRLS SEPARATED, AND TOGETHER

Table A

INCIDENCE OF DEPRESSION BY GRADE AND RESEARCH GROUP, WITH MALES AND FEMALES SEPARATED, AND TOGETHER

		INCIDENCE IN % DEPRESSION					
		BOYS		GIRLS		BOYS & GIRLS COMBINED	
Grade 3	Boys=30 Girls=24 (N=54)	(4)	13.33%	(3)	12.50%	(7)	12.96%
Grade 4	Boys=36 Girls=33 (N=69)	(3)	8.33%	(5)	15.15%	(8)	11.59%
Grade 5	Boys=25 Girls=13 (N=38)	(0)	0.0%	(0)	0.0%	(0)	0.0%
Grade 6	Boys=31 Girls=26 (N=57)	(5)	16.13%	(6)	23.08%	(11)	19.30%
Grade 7	Boys=32 Girls=22 (N=54)	(4)	12.5%	(3)	13.64%	(7)	12.96%
Grade 8	Boys=32 Girls=20 (N=52)	(5)	15.63%	(4)	20.0%	(9)	17.31%
mild/ moderate learning disabled	boys=36 girls=20 (N=56)	(1)	2.7%	(3)	15.0%	(4)	7.14%
severely learning disabled	boys=37 girls=7 (N=44)	(7)	18.92%	(2)	28.57%	(9)	20.45%
regular class students	boys=113 girls=111 (N=224)	(13)	11.5%	(16)	14.41%	(29)	12.95%

APPENDIX 2

PEARSON CORRELATION COEFFICIENTS FOR CONTROL GROUP STUDENTS: CORRELATING VARIOUS ACADEMIC ACHIEVEMENT MEASURES WITH DEPRESSION SCORES ON THE CHILDREN'S DEPRESSION INVENTORY

TABLE B

PEARSON CORRELATION COEFFICIENTS FOR CONTROL GROUP STUDENTS: CORRELATING VARIOUS ACADEMIC ACHIEVEMENT MEASURES WITH DEPRESSION SCORES ON THE CHILDREN'S DEPRESSION INVENTORY

GRADE 3			GMVOC	GMCOMPR
CDI			-0.12539	-0.09788
p			0.4729	0.5759
N			35	35
GRADE 4	CTBSLATO	CTBSMATO	GMVOC	GMCOMPR
CDI	0.31855	0.13943	-0.00772	-0.13802
p	0.1976	0.5811	0.9603	0.3774
N	18	18	44	43
GRADE 5			GMVOC	GMCOMPR
CDI			0.09362	-0.07611
p			0.7302	0.7794
N	1	1	16	16
GRADE 6	CTBSLATO	CTBSMATO	GMVOC	GMCOMPR
CDI	-0.01742	-0.12794	0.42254	-0.07346
p	0.9436	0.5909	0.0501	0.7453
N	19	20	22	22

GMVOC = Gates MacGinitie Reading Test - Vocabulary

GMCOMPR = Gates MacGinitie Reading Test - Comprehension

CTBSLATO = Canadian Test of Basic Skills - Language Total

CTBSMATO = Canadian Test of Basic Skills - Math Total

Table B - continued

GRADE 7	CTBSLATO	CTBSMATO	GMVOC	GMCOMPR
CDI	0.04928	-0.13767	-0.19094	-0.24100
p	0.7819	0.4303	0.5972	0.5024
N	34	35	10	10

GRADE 8	CTBSLATO	CTBSMATO	GMVOC	GMCOMPR
CDI	-0.08531	-0.18904	0.71622	-0.10036
p	0.6156	0.2625	0.0457*	0.8131
N	37	37	8	8

* significant at .05 level

CTBSLATO = Canadian Test of Basic Skills - Language Total

CTBSMATO = Canadian Test of Basic Skills - Math Total

GMVOC = Gates MacGinitie Reading Test - Vocabulary

GMCOMPR = Gates MacGinitie Reading Test - Comprehension